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ABSTRACT

This paper presents a review of research on television viewing and child behavior. The first section of the paper presents a brief historical review of television research. This review includes research on the effect of television on people's lives, the effects of violent content on aggressive behavior and the possible harmful effects of advertising and social stereotypes as well as the beneficial effects of prosocial and educational content on children's attitudes and behavior. The second section of the paper reviews research on the visual and auditory form rather than the content of television programs. This research suggests that such features as non-verbal auditory effects, action, and rapid auditory or visual changes tend to elicit and hold children's attention. Visual camera effects such as zoom and pan techniques were less powerful in eliciting attention than similar auditory features such as sound effects and changes in auditory stimuli. The research cited suggests that formal, as opposed to content, features in general are especially influential with very young children and children with little television viewing experience. Comprehension of formal features was found to increase with age. It is also suggested that formal features may affect behaviors such as persistence, activity level, and aggression and may be more influential than violent content in eliciting certain behaviors. The paper suggests that more research in these areas is necessary to clarify these results. (BD)

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Television and Growing Up: The Medium Gets Equal Time

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Abstract

The first section of the paper is a brief historical overview of the major questions addressed in television research. In the 1950's, the effects of the medium itself on people's lives were studied with the conclusion that television had less drastic effects than many critics had feared. In the 1960's, research was focused primarily o the effects of violent content on aggressive behavior. In the 1970's, research attention has turned to other possible harmful effects of television such as advertising and social stereotypes and to the potentially beneficial effects of prosocial and educational content.

The second section of the paper is a review of current knowledge about another new research direction--the effects of the forms of the medium rather than its content. Formal features include pacing, level of action, amount of variability, visual camera techniques such as cuts and zooms, and auditory techniques such as music and special effects. Currently available data on young children suggest that auditory features, action, and rapid changes attract and hold attention whereas visual features are less powerful. There is some indication that formal features are more important than violence, and some theoretical reason to believe that they are especially influential for very young children or people with little experience with the medium. Comprehension of formal features and content associated with them improves with age and, in some groups, viewing experience. Finally, there is some evidence that formal features affect behaviors such as persistence, activity level, and aggression, but the nature of these effects remains to be elucidated in more careful empirical study.

Television and Growing Up: The Medium Gets Equal Time

The title of this paper is deliberately ambiguous. At one level, the television medium has been getting equal or more than equal time from most children for many years. The figures on its use are cited endlessly, though estimates vary considerably. American children average 2-4 hours a day of television viewing; in the course of a year, they spend more time watching television than in any other single activity except sleeping (Lyle, 1972).

At a second level, the medium has begun to get equal time in psychological research. It is gradually being recognized as a socializing influence on a par with family, school, and peers. One of my purposes in this paper is to do a brief historical overview of research on television and children in order to summarize what major questions have been asked and what knowledge we have gained about the medium. In this overview, I will try to highlight the ways in which social issues have guided the research questions asked and led to the neglect of other equally interesting questions.

On a third level, some research attention has returned to a consideration of television as a medium rather than focusing solely on its content. One aspect of that new focus, examining the formal properties of the medium, will be the subject of the second part of this address.

First, the historical overview. In the period from 1950 to 1960, the United States became a nation of television viewers. Television spread so rapidly that well over 90% of American homes had at least one television set by 1960. Quite understandably, many people were concerned with the effects of this new medium on people's lives. The major questions asked in research had to do with the effects of the medium itself. What activities were abandoned in favor of television viewing? Did viewing lead children to spend less time

playing with friends? Did television lead to less family interaction? Did TV provide an escape into fantasy that would be too readily used by disturbed or unhappy children? Did it interfere with school work? And many more.

These questions and many others were addressed in large-scale survey studies. The two best known were a series reported by Schramm, Lyle, & Parker (1961) on American and Canadian children and a series reported by Himmelweit, Oppenheim, and Vince (1958) on British children. In effect, all of these early studies agreed in finding surprisingly little impact of television on children's lives. The worst fears of critics who envisioned zombies staring vacantly at the idiot box were not confirmed. For the most part, television replaced activities that were "functionally equivalent": radio, comic books, movies, and other "pictorial media". It did not appear to replace leisure reading, though more recent findings suggest some reduction in reading. Families spent slightly more time together with television than without, though, of course, some of that time was spent watching television together. There was no reduction in peer group interaction, play activities, or other forms of social activity. Some disturbed and socially isolated children watched large amounts of television, but it appeared that the symptoms of disturbance had preceded the heavy television use rather than the other way around. Rather than holding children mesmerized for hours in front of the tube, television became integrated into other activities and life patterns. Viewing was often done in social groups or accompanied by other activities such as play, homework, or hobbies.

Although the research of the 1950's led to the conclusion that television as a medium had less drastic effects on children and family life than some had feared, it was nevertheless clear that television had become an integral part

of the family. Most homes had at least one set, people did spend a large amount of time watching. Television was taken for granted, yet it gradually became clear that a great deal was being learned from television, often through a process of incidental rather than intentional learning. For children, television had become a major socializing agent. (See Maccoby, 1964, for a review of this early research.)

Attention in the 1960's turned, therefore, to an examination of what this socializing agent was teaching. Research shifted from the medium itself to the content of programs presented. Very quickly, researchers focused on the enormous amount of violence shown on television. The major research question for the decade of the 60's was, what are the effects of television violence on aggressive behavior?

This important, but rather narrow question occupied a great deal of time, money, and talent culminating in a million dollars and 23 studies assembled for the Surgeon General's Advisory Committee on Television and Social Behavior (1972) That committee concluded that television violence was causally related to aggressive behavior, then qualified their conclusion to say that the instigating effects of violence occurred primarily for children who were already somewhat aggressive and only in some environmental contexts. As the committee contained several members with a vested interest in commercial television, there had to be a strong empirical support for such a conclusion to emerge at all.

The research of the 1960's yielded a wealth of information on television violence and aggression, including many of the mediating variables involved. The narrow focus on this issue was due to the social importance of violent behavior, particularly in a decade where both government and citizens used

violence extensively as means to obtain their goals. It also was due to the political controversy generated by a challenge to the bread and butter of the television industry.

The Surgeon General's Committee report and the studies associated with it (Comstock & Rubinstein, 1972a; 1972b; Comstock, Rubinstein & Murray, 1972; Murray, Rubinstein & Comstock, 1972; Rubinstein, Comstock & Murray, 1972; Surgeon General's Advisory Committee on Television and Social Behavior, 1972) served as a virtual finale to research on television violence. Many people felt that the answers obtained from that research were as definitive as any that were likely to emerge from empirical studies. For instance, in 1975, several foundations held a conference of researchers, producers, and social critics of television to form recommendations for future funding priorities in television research. One striking feature of the recommendations emerging from that conference was the absence of concern with television violence (K. Anderson, Comstock & Dennis, 1976). The decline in research interest in violence does not mean that available data are perfect or that the social problem of television violence has been solved, but that the benefits that could be derived from improved methods and corrections of faults in existing studies would be relatively minor. In addition, it became quite clear that research simply showing negative effects of television violence, no matter how definitive, would not change the content of commercial television programs. Violent content has continued at approximately the same levels on network television for the past ten years (Gerbner & Gross, 1976). There has been some reduction on children's programs, but they continue to have rates of violent actions that are two to three times those in adult programs.

The 1970's brought an expansion of topics in television research as well as a general increase in awareness and interest in media research. Concern about the harmful effects of television was extended from violence to advertising and social stereotypes. In both cases, the impetus for research arose primarily from the activities of citizens' groups such as Action for Children's Television and Council for Children, Media, and Merchandising, and from political movements for civil rights and for women's rights.

A second trend of the 1970's, both in research and in television programming, is the effort to capitalize on the power of television for positive socialization of children. "Sesame Street" and "Electric Company" broke the ground for widespread acceptance and viewing of programs designed to teach children. A crucial element in the initial success of "Sesame Street" was careful evaluative research that documented both the extent of viewing the program and the gains in knowledge resulting from it (Ball & Bogatz, 1970; Bogatz & Ball, 1971).

"Sesame Street" also illustrates a change in the style of research in the 1970's. Psychologists and specialists with knowledge about children have become involved in the formation as well as the evaluation of television programs (Lesser, 1974). "Formative research"--that is, research that is designed to provide direction and feedback during the process of production--has become more common.

The positive socialization potential of television has also been explored in studies of prosocial television content. Some researchers reasoned that if children would imitate violence, they might equally well imitate cooperation, helpfulness, delay of gratification, task persistence, or creative use of

fantasy. On the whole, the data have supported that assumption (Stein & Friedrich, 1975).

Research on "Sesame Street" and prosocial programming probably led to some changes in commercial programs. Some commercial producers were convinced for the first time that it was possible to make educational programs that would hold large audiences. Further, identifying and specifying prosocial behaviors provided some concrete ideas for content other than violence. In 1974, CBS ran a full page ad in the New York Times lauding its new "prosocial" children's programs. It appears to me that there is more programming of that type now than there was five years ago, though it is still a small island in a large sea of the same old stuff.

In summary, the 1950's were a time of concern with the effects of television as a medium on the lives of children and families. The major conclusions that emerged from this early research were ironically contradictory. On the one hand, most researchers concluded that television did not have the impact on people's lives that had originally been anticipated and feared by some. On the other hand, television had insinuated itself into the American home so thoroughly that it had become a major part of the lives of virtually all children.

In the 1960's, concern shifted to the content of this almost universal socializing agent--specifically to the effects of violent content on aggressive behavior. The conclusion emerged quite clearly that television violence instigates aggressive behavior, though some disagree on the magnitude of these effects.

In the 1970's, research has turned to other potentially negative influences of television--advertising and social stereotyping--and to positive uses of

television to teach cognitive skills or to socialize prosocial rather than antisocial behavior. Most of these research directions are very much in process at the present time.

Form in the Television Medium

While all of these research thrusts are important and need to be followed, it may be that we are ignoring other important aspects of television by focusing almost entirely on the content of its programs. Perhaps we dropped prematurely the questions about the effects of the medium itself. Or perhaps it is time to return to those questions in a more refined way. I am going to turn now to a new research area in which I am currently involved in collaboration with John Wright--examining the <u>forms</u> of the medium rather than its <u>content</u>.

Because television and film are audio-visual media, they organize and present content with certain forms or formats. The visual image can jump from one viewing angle to another, it can zoom, pan across a scene, fade, dissolve, slow down or speed up motion, just to name a few of the more common visual techniques.

In the sound dimension, one can have dialogue and narration, but it is possible to present musical variation, laughing, and all manner of artificial noises and sound effects ranging from a creaking door to the whistle as Road Runner once again sends Wile E. Coyote to the bottom of the chasm. At a more molar level, programs can differ in pace by changing scenes, characters, or speakers more or less rapidly and they can vary in the level of action.

All of these formal, as opposed to content, features of the medium have typically been the province of the film artist, the producer and the editor. They have been considered important as tools of the trade, but virtually all

of the knowledge about their effects was based on lore and "seat of the pants" experience in the film-making business.

Yet, many years ago, McLuhan (1964) suggested that the formal properties of audio-visual media might have profound effects on basic modes of thinking and cognitive processing. He proposed that filmic representation differed in fundamental ways from verbal forms of representation and that individuals who got a large amount of their information from visual media like television or film would learn a different "language" or at least a new "grammar". They would learn the codes of the film medium and would be able to understand information presented in those codes. Perhaps more important, they would adopt those codes in their own thinking. The current upsurge of interest in visual literacy or media literacy is an outgrowth of McLuhan's thinking (e.g., Dondis, 1973).

In addition to the theoretical interest generated by McLuhan's proposals, there are some practical reasons for studying forms in television. If one could identify the formal properties that are effective in attracting and holding child audiences, those features could be used to make educational and prosocial television maximally effective. Further, if such features could be separated from objectionable content, particularly violence, then they might be used by commercial producers to make less violent programs that could survive the ratings battle.

Finally, formal features may affect behavior. We have been so focused on content that we have often ignored the possibility in many existing studies that the behavioral effects of violent or prosocial programs might have resulted from form as well as content. For instance, most of the studies

of prosocial television have used "Mr. Roger's Neighborhood", a program that is striking for its slow, gentle pace and quiet tone (Stein & Friedrich, 1975). Resulting changes in cooperation, helping, or task persistence could be partly due to such formal features.

The study of formal features is new, and the available data so far are sparse. Nevertheless, I would like to raise what I consider some important and interesting questions about formal features and to review the existing literature in an effort to provide some tentative answers to these questions. The end result will be more questions than answers, but perhaps the effort will help to formulate issues for future research. I am going to consider the relation of formal features to attention first, comprehension second, and finally, behavior.

First, attention. Three major questions about the effects of formal features will be considered: 1) What formal features are most effective in attracting and holding children's attention to television programs? 2) Are formal features more or less important than content, especially violent content, in gaining attention? 3) Are there developmental changes in the effects of formal features on attention?

The first question, what formal features are most effective in attracting and holding attention, has been addressed in several studies using different types of programs--"Sesame Street" (D.R. Anderson & Levin, 1976; D.R. Anderson, Levin, & Lorch, 1977), "Lassie" (Rubinstein, Liebert, Neale & Poulos, 1974), commercials (Wartella & Ettema, 1974), Saturday morning cartoons (Huston-Stein, Watkins & Fox, Note 1) and a variety of children's programs (D.R. Anderson, Alwitt, Lorch & Levin, in press). Unfortunately, different systems of scoring

formal features have also been used. Nevertheless, there is some consistency in the findings.

First, auditory features other than dialogue, such as lively music, sound effects, peculiar voices, non-speech vocalizations, and frequent changes of speaker attract and hold children's attention. Visual features such as zooms, pans, and the like have less influence. Second, in most studies, high levels of physical activity or action elicit and maintain children's attention. Third, changes in scene, characters, themes, or auditory events are especially useful for eliciting attention, though perhaps slightly less important for maintaining it once the child is looking.

The finding that non-verbal auditory events, action, and change attract and hold children's attention is not terribly surprising, but the failure of visual events to do so consistently may be somewhat surprising to those who have focused on the visual nature of an audio-visual medium. By definition, visual features cannot affect attention unless the person is already looking, but even then there is little evidence that they <u>hold</u> attention. A series of studies of very young children (1-3-year-olds) using a live model supports the predominance of the auditory cues given singly, but when cues in the two modes dictated contradictory behavior, these young children followed the auditory cues more often than the visual cues (Volkmar & Siegel, Note 7; Volkmar, Hoder & Siegel, Note 6).

The second question concerning attention is whether formal features have more or less influence than content, especially violence. To my knowledge, our work is the only set of studies examining this question. Clearly, formal featur

can be separated conceptually and operationally from violent content. In our scoring system, action, pace, and other formal features are defined independently of violent content. In one study of preschoolers, programs were selected to be high in both action and violence, high in action and low in violence, or low in both action and violence. We were unable to find a low action-high violence program. Children's total attention differed as a function of action, not of violence. That is, they were as attentive to high action without violence as they were when it accompanied violence (Huston-Stein, Watkins & Fox. Note 1).

A more molecular analysis was performed for these three programs and for four other cartoons by dividing each program into 15-second intervals and correlating attention with formal features and violent content. Multiple regressions were performed to determine which features were the best predicators of attention in each program. Violence did not enter any of the seven multiple regressions as a predictor that contributed significant variance independently of formal features, but considerably more data on different programs and different age groups are needed.

The third question concerning attention, are there developmental changes in children's response to formal features, has more theoretical interest for developmental psychologists. In an earlier paper (Huston-Stein & Wright, Note 2), we proposed a hypothesis about developmental changes in children's responses to formal features. That hypothesis was based on Wright's more general mode of developmental changes in children's methods of getting information (Wright & Vlietstra, 1975; Wright, Note 9).

In that model, the initial model of getting information is <u>exploration</u>.

It involves responding to the most perceptually salient features of the environment in a relatively discontinuous and impulsive manner. As children gain age-related conceptual abilities or as they become more familiar with a particular stimulus situation, they shift to the search mode. Search is goal-directed and systematic, and the person attends to those stimuli that are informative or relevant to the goal regardless of their perceptual salience. One of the most important features of this model is the notion that familiarization or experience with a task is as important as more maturationally based cognitive change in bringing about a developmental shift for that task or situation. In applying this model to children's attention and comprehension of formal features in television programs, we propose that younger children and less experienced viewers would respond to the most salient features as isolated attention-getting events of interest in their own right. The loudest, weirdest sounds; the most unusual visual effects and so on should be most likely to attract the attention and interest of young and inexperienced viewers.

Older and more experienced viewers would have become habituated to such salient formal features and would, therefore, be less responsive to them. They would be more interested in the content and its meaning. More important for this discussion, they would also have a better understanding of the filmic codes and structures signified by formal features. For them, such features would serve as syntactic markers. For instance, they would attend to a dissolve not because it was an interesting visual event, but because it signified a change in time or place. In effect, we propose that the acquisition of filmic codes described by McLuhan (1964) follows a develop-

mental course based on more general cognitive developmental changes and on experience with the medium.

At this stage, there is little information on developmental differences in attention related to this hypothesis, though, as you will see shortly, there is more information on comprehension. The available studies of attention cover a limited age range and only one of the studies reviewed specifically compared children of different ages (Wartella & Ettema, 1974). Their findings are consistent with the hypothesis that younger children are more responsive to formal features than older children. Three- and four-year-olds showed bigger differences in attention to commercials rated high and low in auditory features than did seven- and eight-year-olds. More data are obviously needed, however, to draw any firm conclusions.

What can we conclude about formal features and attention? First, the formal features that attract and hold attention most effectively appear to be non-verbal auditory techniques, action, and frequent changes or rapid pace. Visual techniques are apparently less important. Second, these features can be separated conceptually and operationally from violent content, and some preliminary findings suggest that they affect attention more than violence does. Finally, there are good theoretical reasons to believe that preschool children are more responsive to formal features purely on the grounds of perceptual salience whereas older children understand the uses of such features, but again, evidence is sparse.

Let us turn now to comprehension. There are two questions concerning formal features and comprehension to be addressed. 1) Are there developmental changes, based on age or on viewing experience, in children's under-

standing of and ability to use the filmic codes represented by formal features? 2) How do formal features affect learning of content?

The major developmental research concerned with these questions has been conducted by Salomon and his colleagues at the University of Jerusalem (Salomon, 1974; 1976. Note 4; Note 5). They conceptualized formal features as media codes that impose transformations on the messages contained in the presentation. Some formal features may be viewed as representing certain mental skills or mental operations. For example, the close up and the zoom literally portray the mental operation of relating parts to a whole. Camera cuts that make the image jump from one part of a physical space to another, or from one view of an object to another, correspond to the mental operations of coordinating spaces and taking different perspectives.

They propose that audio-visual media codes can have two functions in the development of such mental skills: the one that is developmentally first is the function of "supplanting" the skill. That is, the camera essentially performs the operation for the viewer; presumably the viewer can learn the skill from watching the camera. A zoom is an example of a camera operation that supplants the skill of analyzing a complex array into subparts or isolating one small part at a time.

The second function of media codes is to "call upon" an already existing skill in the viewer. For example, a close-up shot presumes that the viewer can already relate small parts to a larger whole; it does not perform the operation as a zoom does.

Data on both Israeli and American children support the hypothesis that the understanding of and ability to use common media codes increase with age

and in some cases, with media experience. Younger and less experienced viewers benefit more from media formats or formal features that supplant the intellectual skills to which they relate. Older and more experienced viewers understand formats that call upon related mental skills better than do younger and less experienced viewers (Salomon, Note 5).

These data support to a limited degree McLuhan's hypothesis that audio-visual media present new forms of information processing which are internalized by the developing viewer. They also support in part our hypothesis that both age-related cognitive development and experience with the television medium increase the ability to use and understand the codes of the medium.

The second question concerning comprehension is, how do formal features affect comprehension of the content of a message? At one level, it might be expected that comprehension would be higher for any content that was associated with high levels of attention. However, high attention does not guarantee comprehension. In particular, young children often attend to and recall content that is incidental and irrelevant to the message that was considered central by the adult producers (Collins, 1970; Hale, Miller & Stevenson, 1968; Hawkins, 1973). If features such as sound effects draw attention to such incidental content, the result might be lowered understanding of central content. For instance, if a cereal commercial carries a message about vitamins and nutrition, the content may be lost if it is accompanied by sound effects and visual camera tricks that are highly interesting in themselves.

Salomon's work (Note 4) also indicates that children understand content messages better when they understand the formats used to present the content.

For instance, children who were good at relating parts to a whole, and who could, therefore understand a close-up format, learned more content from a film using close-ups than did children who were less skilled in understanding that format.

The tentative answer to this second question concerning the effects of formal features on comprehension of content is that associating content with a formal feature may increase comprehension of that content if the feature is familiar and understood by the child and if it focuses attention on relevant rather than incidental content. If the child does not understand the code represented by the feature or if it focuses attention away from the central content, it may interfere with comprehension.

Effects on behavior.

1) Do children imitate formal attributes such as action and pace? 2) Do these formal features have different effects on behavior than violent content?

I suggested earlier that one reason for attempting to separate formal features from content was the effort to identify characteristics of programs that would interest child audiences without some of the negative behavioral effects of violence. For example, children might imitate physical activity without a corresponding rise in aggressive behavior if a program contained a lot of non-violent action. In a few of the laboratory studies testing the effects of aggressive models, there have been control treatments presenting highly active, but nonaggressive models (Bandura, Ross & Ross, 1963; Christy, Gelfand & Hartmann, 1971). Children did not show high aggression after seeing these models, but they did have high levels of physical activity. In a field

study, Israeli children exposed to "Sesame Street" on a regular basis had lower levels of perseverence on a routine task than control subjects (Salomon, 1972). Although this finding was attributed to the rapid pace of the program, the results of a short-term laboratory study comparing high- and low-paced segments of "Sesame Street" for American children did not support the hypothesis that pace affected self-regulatory behavior (Anderson, Levin & Lorch, 1977). It is possible that the Israeli children were affected more than the American children because of less previous television exposure and because of the longer duration of the field study as compared to a brief laboratory exposure.

If children imitate specific features of both form and content, then we should probably recommend to producers that they use lots of action, but keep it nonviolent. However, another hypothesis, based on general arousal theory, is that both formal complexity and violent content lead to a state of general arousal that, in turn, increases the likelihood of whatever behavior is cued by the situation. According to this hypothesis, in any situation where aggression is likely, exposure to television programs containing high levels of action, pace, and the like would increase aggressive behavior.

The arousal hypothesis has been tested in some studies of adolescent and adult males. In one study (Watt & Krull, Note 8), physiological arousal during and immediately after viewing a television program was associated both with the complexity of formal features and violent content. In another, adolescents' typical levels of aggression were correlated with both the formal complexity and the violent content of the programs they watched on

television (Krull & Watt, Note 3). In each case, form and content made independent contributions.

We do not know to what extent the same results would occur for younger children. In any case, it is important to note that aggressive behavior is not a necessary result of general arousal. Arousal activates whatever behavior is highest in the person's response hierarchy and/or whatever behavior is cued by the situation. Therefore, arousal might equally well lead to increases in prosocial or other forms of behavior if the situation suggested these.

Unfortunately, at this stage, I do not think a clear answer can be given to the questions raised about formal features and behavior. It appears that formal features may lead to behavioral changes, but whether these are specifically imitative or whether they result from general arousal is an open question. Hence, we do not know whether these effects are different from those produced by violent content. In my opinion, this issue is an important one to pursue in future research because of its far-reaching practical import as well as its theoretical interest.

To recapitulate and conclude. Beginning with questions about the impact of television as a medium on the lives of children, research turned quickly to the content of television--first to its harmful effects, later to its potential as a positive socializing agent. Despite the fact that strong, dramatic effects of television (that is, effects accounting for large portions of the variance in behavior) have rarely been demonstrated, television has become such an integral part of our children's lives that we take for granted some of its more subtle influences. For the generations of

children growing up in the past 20 or 30 years and in the foreseeable future, television is a major socializing agent. It is time to examine more carefully the effects of the medium itself and to do more refined analyses of its form as well as its content. Learning more about the effects of formal characteristics of the medium on children's behavior, attention, and comprehension may lead to a better understanding of the development of cognitive sophistication in the codes of the media as well as to practical information about ways in which antisocial content can be reduced in commercial programs without losing audiences and, finally, to knowledge about production techniques that may maximize the impact of prosocial and educational programming.

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